

IN THE CLAIMS:

Please amend pending Claims 7, 17, 21 and 25 as follows:

1. (Withdrawn) An apparatus for measuring motion of a portion of the body of a patient in a magnetic field, comprising:

a cradle coupled around at least part of said portion of the body of said patient;

a length of wire coupled to said cradle and responsive to motion of said portion of the body of said patient; and

a voltage measuring device having an input coupled to said wire and an output representative of the motion of said portion of the body of said patient.

2. (Withdrawn) The apparatus of Claim 1, wherein said cradle is formed from a thin polycarbonate plastic strip.

3. (Withdrawn) The apparatus of Claim 1, wherein said length of wire is formed from a high resistance lead.

4. (Withdrawn) The apparatus of Claim 1, wherein said voltage measuring device comprises:

a Faraday shield forming an enclosure;

two RF filters mounted in said Faraday shield, each of said RF filters having an input coupled to said wire and an output;

a differential amplifier mounted within said enclosure and having two inputs and an output, each of said inputs coupled to a respective output of one of said two RF filters;

a gradient filter mounted within said enclosure and having an input and an output, said input of said gradient filter coupled to said output of said differential amplifier, and

a transmitter mounted within said enclosure and having an input connected to said output of said gradient filter and an output representative of the motion of said portion of the body of said patient.

5. (Withdrawn) The apparatus of Claim 1, wherein said voltage measuring device comprises:

a Faraday shield forming an enclosure and coupled to said wire;

an RF filter mounted in said Faraday shield having an input coupled to said wire and an output;

a differential amplifier mounted in said enclosure and having two inputs and an output, one of said inputs coupled to said output of said RF filter and the other of said inputs connected to said Faraday shield;

a gradient filter mounted in said enclosure and having an input and an output, said input of said gradient filter coupled to said output of said differential amplifier, and

a transmitter mounted in said enclosure and having an input coupled to said output of said gradient filter and an output representative of the motion of said portion of the body of said patient.

6. (Withdrawn) An apparatus for measuring motion of a portion of the body of a patient in a magnetic field, comprising:

a length of wire coupled around at least part of said portion of the body of said patient; and

means for measuring a voltage developed on said length of wire in a magnetic field, said means for measuring a voltage positioned within said magnetic field and having a first input connected to said and an output representing the motion of said portion of the body of said patient.

7. (Currently Amended) An apparatus for producing a signal representing both the motion of an exterior portion of the body of a patient in a magnetic field and an electrocardiogram of the patient in the magnetic field, comprising:

first and second ECG electrodes adapted to be attached to a patient positioned in said magnetic field;

first and second ECG leads connected respectively to said first and second electrodes, said first ECG lead adapted to enclose form a loop around at least part of said exterior portion of the body of said patient; and

a voltage measuring device having an input coupled to said ECG leads and producing an output signal having a first component induced by said magnetic field in the first ECG lead and representative of the motion of the exterior portion of the body of said patient and a second component representative of the electrocardiogram of said patient; and

circuits responsive to said output signal for generating an ECG signal for display
and a gating signal representative of the motion of the exterior portion of the body of said
patient.

8. (Currently Amended) The apparatus of Claim 7, further comprising a cradle adapted to be coupled around at least part of said portion of the body of said patient and coupled to said one of said ECG leads enclosing at least part of said portion of the body of said patient.

9. (Original) The apparatus of Claim 8, wherein said cradle is formed from a thin polycarbonate plastic strip.

10. (Previously Presented) The apparatus of Claim 7, wherein said ECG leads are formed from high resistance leads.

11. (Previously Presented) The apparatus of Claim 7, wherein said voltage measuring device comprises:

a Faraday shield forming an enclosure;

two RF filters mounted in said Faraday shield, each of said RF filters having an input coupled to a respective one of said ECG leads and an output;

a differential amplifier mounted within said enclosure and having two inputs and an output, each of said inputs coupled to a respective output of one of said two RF filters;

a gradient filter mounted within said enclosure and having an input and an output, said input of said gradient filter coupled to said output of said differential amplifier, and

a transmitter mounted within said enclosure and having an input coupled to said output of said gradient filter and an output representative of the motion of said portion of the body of said patient.

12. (Previously Presented) The apparatus of Claim 7, wherein said voltage measuring device comprises:

a Faraday shield forming an enclosure and coupled to a first one of said ECG leads;

an RF filter mounted in said Faraday shield having an input coupled to a second one of said ECG leads and an output;

a differential amplifier mounted within said enclosure and having two inputs and an output, one of said inputs coupled to said output of said RF filter and the other of said inputs connected to said Faraday shield;

a gradient filter mounted within said enclosure and having an input and an output, said input of said gradient filter coupled to said output of said differential amplifier, and

a transmitter mounted within said enclosure and having an input coupled to said output of said gradient filter and an output representative of the motion of said portion of the body of said patient.

13. (Withdrawn) A method for measuring motion of a portion of the body of a patient in a magnetic field, comprising:

coupling a cradle to at least part of said portion of the body of said patient;

coupling a length of wire to said cradle; and

measuring the voltage developed on said length of wire to generate a signal representing the motion of said portion of the body of said patient.

14. (Withdrawn) The method of Claim 13, wherein said cradle is formed from a thin polycarbonate plastic strip.

15. (Withdrawn) The method of Claim 13, wherein said length of wire is formed from a high resistance lead.

16. (Withdrawn) A method for measuring motion of a portion of the body of a patient in a magnetic field, comprising:

positioning a length of wire around at least part of said portion of the body of said patient; and

measuring, within said magnetic field, a voltage developed on said length of wire in a magnetic field to generate a signal representing the motion of said portion of the body of said patient.

17. (Currently Amended) A method of producing a signal representative of the motion of a portion of the body of a patient in a magnetic field and an electrocardiogram of the patient in the magnetic field, comprising:

attaching first and second ECG electrodes and ECG leads to the patient;

positioning coupling at least one ECG lead to form a loop around at least part of said exterior portion of the body of the patient; and

producing an output signal having a first component induced by said magnetic field in said at least one ECG lead and representative of the motion of the exterior portion of the body of the patient and a second component representative of the electrocardiogram of the patient;

generating an ECG signal for display from said output signal; and

generating a gating signal representative of the motion of the exterior portion of the body of the patient from said output signal.

18. (Previously Presented) The method of Claim 17, further comprising the step of positioning a cradle attached around at least part of the portion of the body of the patient, said cradle coupled to said second ECG lead.

19. (Original) The method of Claim 18, wherein said cradle is formed from a thin polycarbonate plastic strip.

20. (Previously Presented) The method of Claim 17, wherein said first ECG lead and said second ECG lead are formed from high resistance leads.

21. (Currently Amended) An apparatus for measuring motion of an exterior portion of the body of a patient in a magnetic field, comprising:

means for detecting motion of the exterior portion of the body of said patient in the presence of said magnetic field; and

a voltage measuring device connected to said detecting means and having an output induced by the interaction of the motion of the exterior portion of the body of the patient and said magnetic field and representative of the motion of the exterior portion of the body of the patient; and

means responsive to said output signal for generating a gating signal representative of the motion of the exterior portion of the body of said patient.

22. (Withdrawn) The apparatus of Claim 21, wherein said means for detecting motion of the exterior portion of the body of the patient comprises:

a cradle coupled around at least part of the exterior portion of the body of the patient;

a length of wire coupled to said cradle and responsive to motion of the exterior portion of the body of the patient.

23. (Currently Amended) The apparatus of Claim 21, wherein said means for detecting motion of the exterior portion of the body of the patient comprises:

first and second ECG electrodes attached to the patient; and

first and second ECG leads connected respectively to said first and second electrodes, one of said ECG leads enclosing forming a loop around at least part of the exterior portion of the body of the patient.

24. (Withdrawn) An apparatus for measuring motion of a portion of the body of a patient in a magnetic field, comprising:

a cradle adapted to be coupled around at least part of a portion of the body of a patient;

a length of wire coupled to said cradle and, when coupled to a patient, responsive to motion of said portion of the body of said patient; and

a voltage measuring device having an input coupled to said wire and an output representative of the motion of said portion of the body of said patient.

25. (Currently Amended) An apparatus for measuring respiration of a patient positioned in a magnetic field, comprising:

first and second ECG electrodes adapted to be attached to the patient positioned in a magnetic field;

first and second ECG leads adapted to be connected respectively to said first and second electrodes, at least one of said ECG leads enclosing forming a loop around at least part of the exterior portion of the body of the patient; and

a voltage measuring device connected to first and second ECG leads and having an output having a first component induced by the motion of said at least one ECG lead in

said magnetic field and representative of the respiration of the patient and a second component representative of the electrocardiogram of the patient;

means for generating an ECG signal for display from said output signal from said voltage measuring device; and

means for generating a gating signal representative of the respiration of said patient from said output signal from said voltage measuring device.